DÜRKOPP ADLER AG

743 - 221

Sewing unit for the automated sewing single-point darts with straight or curved seam form and for the sewing of pleats.

Instructions for operating

Installing Instruction

Instructions for service

Instructions for programming

1

2

3

4

Postfach 17 03 51, D-33703 Bielefeld • Potsdamer Straße 190, D-33719 Bielefeld
Telefon (05 21) 9 25-0 • Telefax (05 21) 9 25 24 35

DÜRKOPP ADLER AG

Anleitung, komplett
Manual, complete

743 - 221

Inhalt		Summary
Bedienungstafel		Operating table
Bedienanleitung Aufstellanleitung Serviceanleitung Programmieranleitung		Instructions for operating Installating instruction Instructions for service Instructions for programming
Bauschaltplan 9870 743031 B		Interconnection-diagramm 9870 743031 B
Stromlaufplan 9850 743030 SK		Circuit-diagram 9850 743030 SK
Pneumatik Geräteplan 0794 013225 0797 743012		Pneumatic circuit plan 0794 013225 0797 743012

DÜRKOPP ADLER AG

Postfach 17 03 51, D-33703 Bielefeld • Potsdamer Straße 190, D-33719 Bielefeld
Telefon: + 49 (0) 5 21 / 9 25-00 • Telefax: + 49 (0) 5 21 / 9 25 24 35 • www.duerkopp-adler.com Sprache: Deutsch/Englisch

Ausgabe / Edition: 03/01 Printed in Federal Republic of Germany Teile-/ Part.-No.: 0791 743061

Foreword

This instruction manual is intended to help the user to become familiar with the machine and take advantage of its application possibilities in accordance with the recommendations.

The instruction manual contains important information on how to operate the machine securely, properly and economically. Observation of the instructions eliminates danger, reduces costs for repair and down-times, and increases the reliability and life of the machine.

The instruction manual is intended to complement existing national accident prevention and environment protection regulations.

The instruction manual must always be available at the machine/sewing unit.

The instruction manual must be read and applied by any person that is authorized to work on the machine/sewing unit. This means:

– Operation, including equipping, troubleshooting during the work cycle, removing of fabric waste,
– Service (maintenance, inspection, repair) and/or
– Transport.

The user also has to assure that only authorized personnel work on the machine.

The user is obliged to check the machine at least once per shift for apparent damages and to immediatly report any changes (including the performance in service), which impair the safety.

The user company must ensure that the machine is only operated in perfect working order.

Never remove or disable any safety devices.

If safety devices need to be removed for equipping, repairing or maintaining, the safety devices must be remounted directly after completion of the maintenance and repair work.

Unauthorized modification of the machine rules out liability of the manufacturer for damage resulting from this.

Observe all safety and danger recommendations on the machine/unit! The yellow-and-black striped surfaces designate permanend danger areas, eg danger of squashing, cutting, shearing or collision.

Besides the recommendations in this instruction manual also observe the general safety and accident prevention regulations!

General safety instructions

The non-observance of the following safety instructions can cause bodily injuries or damages to the machine.

1. The machine must only be commissioned in full knowledge of the instruction book and operated by persons with appropriate training.

2. Before putting into service also read the safety rules and instructions of the motor supplier.

3. The machine must be used only for the purpose intended. Use of the machine without the safety devices is not permitted. Observe all the relevant safety regulations.

4. When gauge parts are exchanged (e.g. needle, presser foot, needle plate, feed dog and bobbin) when threading, when the workplace is left, and during service work, the machine must be disconnected from the mains by switching off the master switch or disconnecting the mains plug.

5. Daily servicing work must be carried out only by appropriately trained persons.

6. Repairs, conversion and special maintenance work must only be carried out by technicians or persons with appropriate training.

7. For service or repair work on pneumatic systems, disconnect the machine from the compressed air supply system (max. 7-10 bar). Before disconnecting, reduce the pressure of the maintenance unit. Exceptions to this are only adjustments and functions checks made by appropriately trained technicians.

8. Work on the electrical equipment must be carried out only by electricians or appropriately trained persons.

9. Work on parts and systems under electric current is not permitted, except as specified in regulations DIN VDE 0105.

10. Conversion or changes to the machine must be authorized by us and made only in adherence to all safety regulations.

11. For repairs, only replacement parts approved by us must be used.

12. Commissioning of the sewing head is prohibited until such time as the entire sewing unit is found to comply with EC directives.

13. The line cord should be equipped with a country-specific mains plug. This work must be carried out by appropriately trained technicians (see paragraph 8).

It is absolutely necessary to respect the safety instructions marked by these signs.

Danger of bodily injuries !

Please note also the general safety instructions.

Contents **Page:**

Part 4: Instructions for programming DA Microcontrol Cl. 743-221

. Program version: 743221A3

1. General . . . 3

2. Description of the Controls

2.1 Operator Controls on the Front Panel . . . 4
2.2 Operator Controls at the Controls . . . 5
2.3 Display . . . 6

3. Description of the Function Keys

3.1 Selecting and Adjusting the Seam Length . . . 7
3.2 Controlling the Seam Length via Light Barrier . . . 7
3.3 Programming Mode . . . 7
3.4 Setting Parameter Values . . . 8
3.5 Setting the Counter . . . 8
3.6 Softstart . . . 8
3.7 Securing at the Seam Beginning . . . 8
3.8 Securing at the Seam End . . . 9
3.9 Activating Securing . . . 9
3.10 Smoother . . . 9
3.11 Blower . . . 9

4. Setting the Sewing and Testing Programs

4.1 Display of the Program Version . . . 10
4.2 Sewing Program for Darts and Pleats . . . 11
4.3 Setting the Blower Activation Period . . . 12
4.4 Setting the Underthread Counter . . . 13
4.5 Setting the Remaining Thread Monitor . . . 13
4.6 Stopping Point for the Function Sequence . . . 14
4.7 Monitoring the Underthread Counter . . . 14
4.8 Test of the Step Motor Drive Pulse . . . 15
4.9 Timer Test and Memory Test . . . 15
4.10 Continuity Test . . . 16
4.11 Test of the Front Panel Elements . . . 16
4.12 Checking the Input Elements . . . 18
4.13 Selecting Input Elements . . . 18
4.14 Selecting Output Elements . . . 19
4.15 Positioning the Machine Head in the 2nd Needle Position . . . 19
4.16 Positioning the Machine Head in the 1st Needle Position . . . 20

5. Function Displays and Error Messages . . . 20

6. Step Motor Output . . . 21

6.1 Status Displays . . . 21

1. General

The **MICROCONTROL** controls of the **DÜRKOPP ADLER 743-221** include the integrated comprehensive **MULTITEST** testing and monitoring system.

A microcomputer assumes the control tasks, monitors the sewing process and signals operating faults and malfunctions.

Special programs facilitate mechanical adjustments and make possible a rapid testing of the input and output elements without additional measuring apparatus.

Errors and test results are shown in a 2 x 16 digit display.

Under normal working conditions the display shows information to operation and the sewing process.

When an operating error or malfunction occurs the functions are interrupted. The cause is shown in the display by the appropriate error symbol. In most cases the error symbol will disappear when the cause of the fault has been remedied.
In some cases the main switch must be turned off during error correction for safety reasons.

A portion of the error messages are meant only for the service personnel.

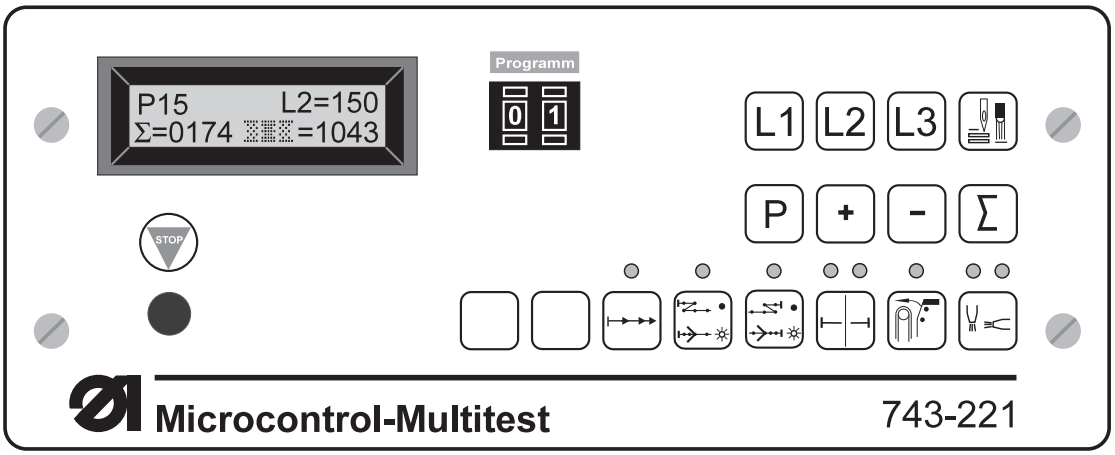
All functions can be called up and changed by pressing the appropriate key. The unit must be in its initial position for this.

When the unit is switched on the controls conduct several comprehensive self-tests. Among other things the program and data memories and the display are checked for flawless operation at this time.

After the machine is switched off the set values of the individual functions are stored in the program and data memories (battery buffered) and automatically activated when switched on again.

2. Description of the Controls

2.1 Operator Controls on the Front Panel



Key	Function	Key	Function
Programm 0 0	Selecting sewing and testing programs	STOP	Stopping the current program, Activating the selected program
L1	Seam length L1		- Reserve -
L2	Seam length L2		- Reserve -
L3	Seam length L3		Softstart
	Seam length via light barrier	☼ ○	Stitch condensation seam beginning Seam bar tacking seam beginning
P	Programming ON / OFF	☼ ○	Stitch condensation seam end Seam bar tacking seam end
+	Increase the parameter value	☼☼ ○☼ ☼○ ○○	Stitch condensation or bar tack: Seam beginning with Seam end with Seam beginning without Seam end with Seam beginning with Seam end without Seam beginning without Seam end without
-	Decrease the parameter value		Smoother
Σ	Setting the counter, Starting the test program, Confirming and selecting parameters	☼○ ○☼	Blower from above Blower from the right

2.2 Operator Controls at the Controls

The needle- and underthread monitors are activated with the DIP switch **b417** at the controls.

The dials **b401** and **b402** have no function.

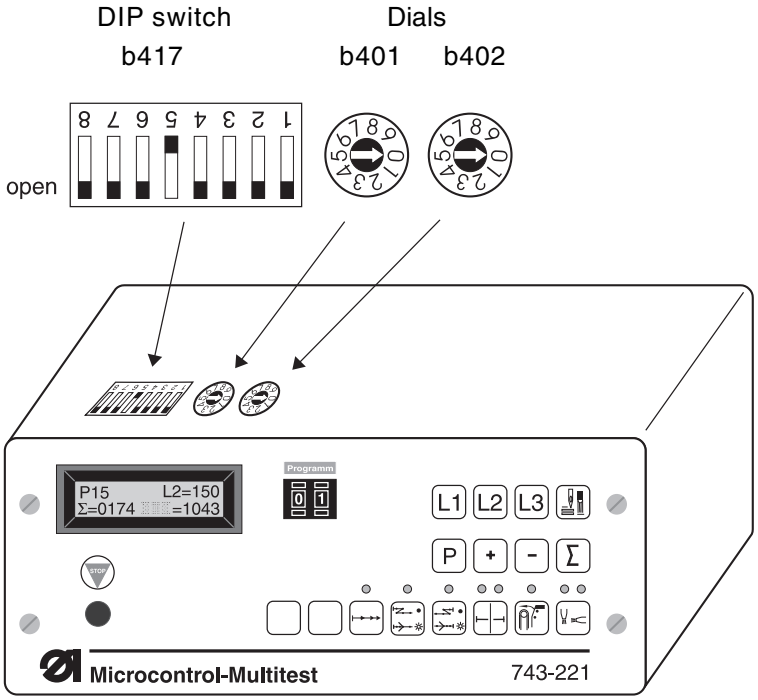
Caution Electric Current !

The switches may only be altered with the main switch turned off.

ATTENTION !

The switches are only verified once after the sewing unit is turned on.

After changing the switch setting turn the main switch off and on again or operate the " STOP " key.



DIP switch b417	open	closed
1	- Reserve -	-Reserve -
2	Needle thread monitor active	Needle thread monitor **not** active
3	- Reserve -	- Reserve -
4	- Reserve -	- Reserve -
5	Underthread monitor **not** active	Underthread monitor active
6	- Reserve -	- Reserve -
7	- Reserve -	- Reserve -
8	- Reserve -	- Reserve -
Dial b401	0...9 = no function	
Dial b402	0...9 = no function	

2.3 Display

The Microcontrol controls are equipped with a 2 x 16 digit display.

It displays program number, sewing lengths, underthread reserve and piece counts. With operator errors or malfunctions the function sequence is interrupted and the cause shown by the corresponding error symbol.

The operational readiness of the sewing unit is signaled by showing the current parameters in the display. The settings correspond to the last selected setting before being turned off.

Display example 1:

P15	= Program 15 is active
L2=150	= Seam length 150 mm
Σ=0174	= 174 sewing pieces were completed.
= 1043	= Underthread reserve on the bobbin

Display example 2:

P15	= Program 15 is active
L2=150	= Seam length 150 mm
Σ=0174	= 174 sewing pieces were completed.
	The underthread reserve on the bobbin is **not** shown.

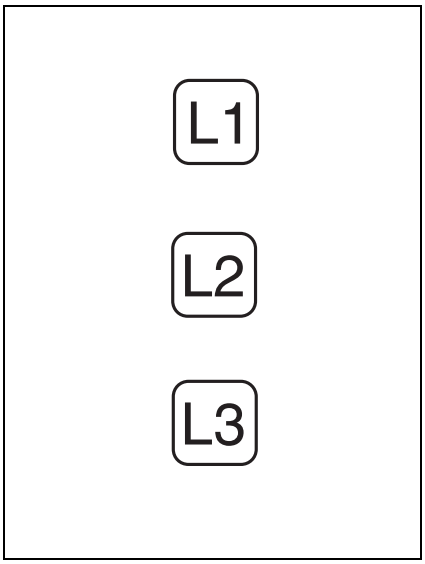
The monitoring of the underthread counter can be turned on or off by program 44.

Display example 3:

= 0000	= The underthread reserve on the bobbin is used up. The symbol is flashing.

3. Description of the Function Keys

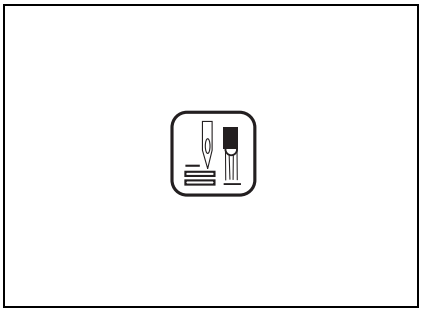
3.1 Selecting and Adjusting the Seam Length



Three stored seam lengths can be selected via the **L1**, **L2** and **L3** keys. A change in the seam length can only be made before starting the feed procedure.

- Select the stored seam length by pressing the **L1**, **L2** or **L3** key.
  The selected seam length is shown in the right half of the first line of the display.
- If "**L?**" appears in the display a seam length was selected under which no valid value is stored.
  Enter a valid value via the " **+** " or " **-** " key or select another seam length.
- Change the set seam length with the " **+** " or " **-** " key.
- Press the function key (**L1**, **L2** or **L3**).
  The set seam length is stored.
  It remains in the memory until it is changed again.

3.2 Controlling the Seam Length via Light Barrier

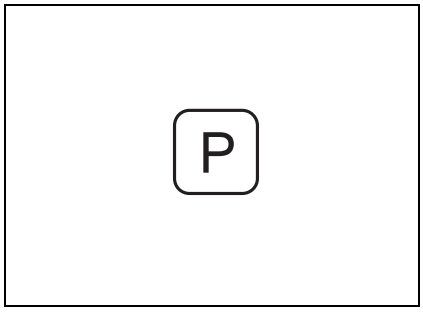


The light barrier is turned on by pressing this key.
The light barrier recognizes the end of the cloth.

- Press the key.
  The symbol "**LX**" appears in the display in place of the seam lengths L1, L2, L3.
- To turn off the light barrier press one of the **L1**, **L2** or **L3** keys.

4

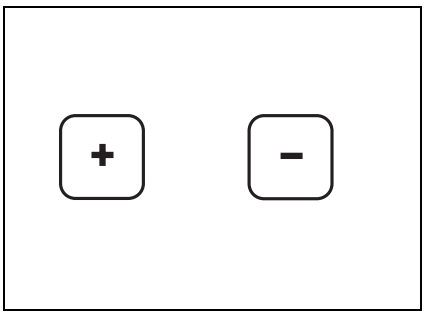
3.3 Programming Mode



The programming mode is activated by pressing this key.

- Press the " **P** " key for 3 seconds.
  The program position and the values to be changed appear in the display.
  With the " Σ " key the individual, alterable parameters are called up consecutively.
- Press the " **P** " key.
  The programming mode is ended.
  The sewing unit is ready for sewing.

3.4 Setting Parameter Values



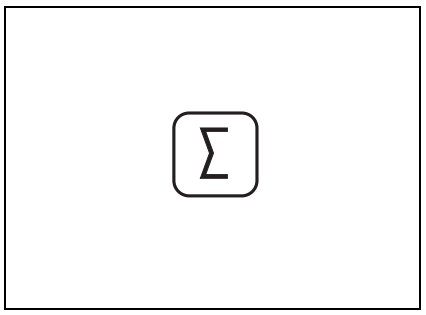
The set parameter values / seam lengthsare changed via the " **+** " or " **-** " key.

– Press the " **+** " key.
  The parameter value / seam lengthsis increased.

– Press the " **-** " key.
  The parameter value / seam lengthsis decreased.

– **Only in program 41 !**
  Press the " **+** " and " **-** " keys at the same time.
  The initial value for the underthread reserve is reset to **0000**.
  ATTENTION !
  By setting the initial value to **0000,** the underthread monitoring is turned off and the automatic remaining thread monitor is activated at the same time.

3.5 Setting the Counter



The **piece counter** shows the number of finished sewing pieces since the last resetting of the counter.

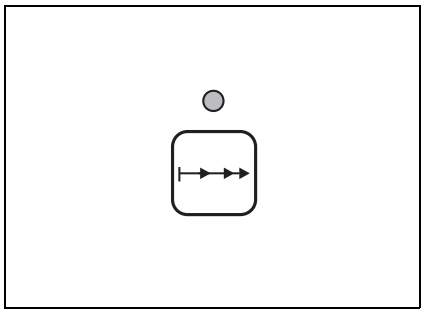
The current piece count appears in the left half of the lower line of the display.

– Press the " Σ " key.
  The piece counter is reset to **0000**.

In the **programming mode** the parameter value is confirmed and one moves to the next parameter with the " Σ " key.

In the **testing programs** the corresponding action is started with the " Σ " key.

3.6 Softstart



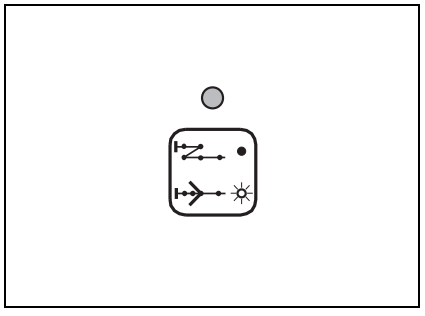
The Softstart is activated by pressing this key.

With Softstart, sewing occurs at a low speed at the beginning of the sewing sequence and then accelerates to the sewing speed.

– Press the key.
  The Softstart is activated. The LED is lit.

– Press the key.
  The Softstart is deactivated. The LED is off.

3.7 Securing at the Seam Beginning



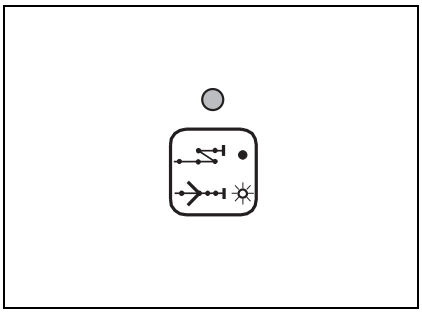
End securing at the seam beginning is selected by pressing this key.

The end securing is only conducted if it is activated with the " " key.

– Press the key.
  End securing through stitch condensation is selected.
  The LED is lit.

– Press the key.
  End securing through seam bar tacking is selected.
  The LED is off.

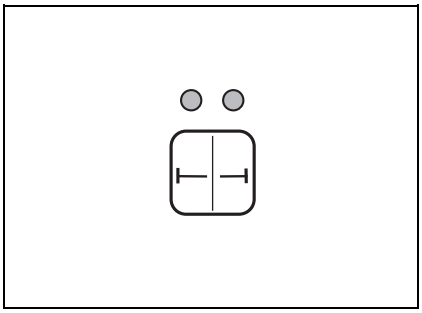
3.8 Securing at the Seam End



End securing at the seam end is selected by pressing this key.
The end securing is only conducted if it is activated with the " ⊢⊣ " key.

– Press the key.
  Securing through stitch condensation is selected.
  The LED is lit.
– Press the key.
  Securing through seam bar tacking is selected.
  The LED is off.

3.9 Securing Activation



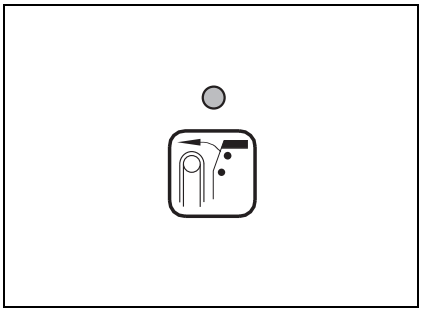
The selected securing at the seam beginning or at the seam end is activated by pressing this key.

– Press the key.
  Dependent on which LEDs are lit that securing is active.

Securing through stitch condensation or bar tack:

☼ ☼	Seam beginning with	Seam end with
● ☼	Seam beginning without	Seam end with
☼ ●	Seam beginning with	Seam end without
● ●	Seam beginning without	Seam end without

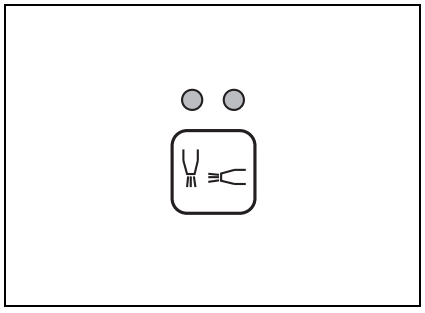
3.10 Smoother



The smoother is activated by pressing this key.

– Press the key.
  The smoother is activated. The LED is lit.
– Press the key.
  The smoother is deactivated. The LED is off.

3.11 Blower



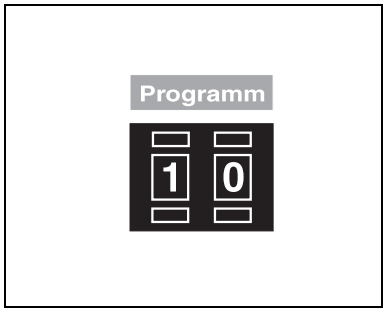
One selects if the sewing piece is blown out from above or from the right by pressing this key.

The corresponding blower device must be installed.

– Press the key.
  Depending on which LEDs are lit the blower from above or from the right is active or the blowing is turned off.

☼ ●	Blower from above
● ☼	Blower from the right
● ●	Blower turned off

4. Setting the Sewing and Testing Programs



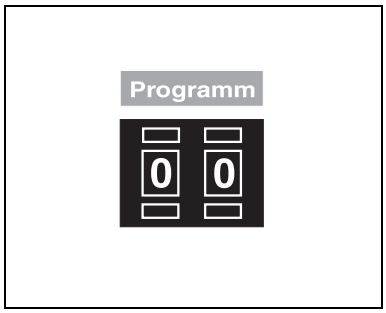
The sewing and testing programs are selected with the " **Program** " selection switch.

– Set the " **Program** " switch to the desired program.
– " Turn the main switch on " or press the " **STOP** " key.
  The selected program is activated.

  If the " **P?** " message appears, an invalid program was set.
  (Exception in program 43. See there)
– Correct the setting and press the " **STOP** " key.

" Program " Switch	Function
00	Display of the program version
10 - 29	Sewing program for darts and pleats.
40	Setting the blower activation period
41	Setting the underthread counter
42	Setting the remaining thread monitor
43	Stopping point for the function sequence
44	Monitoring the underthread counter
57	Test of the step motor drive pulse
59	Timer test and memory test
60	Continuity test
61	Test of the front panel elements
62	Test of the input elements
63	Selecting input elements
64	Selecting output elements
66	Sewing drive: nominal value X,, pos. 2
67	Sewing drive: nominal value X,, pos. 1

4.1 Display of the Program Version



The program version and a checksum appear in the display.

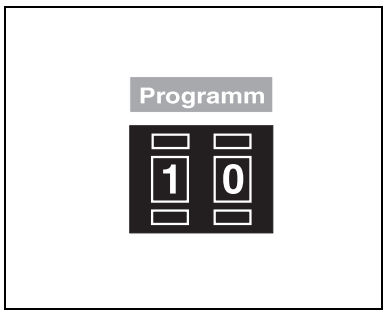
e.g.: **743221A1** 743221 = Class designation
A1 = Identification letter and serial number

By program versions with identical class designation and identical identification letters the higher version replaces all lower versions (e.g.: 743221A3 replaces 743221A1 and 743221A2).

The checksum is meant only for the works service department. With this value it is verified if the program memory faultlessly contains the complete machine program.

– Set the " **Program** " switch to " **00** ".
– Press the " **STOP** " key.
  The program is activated.

4.2 Sewing Program for Darts



The program positions 10 ...29 are available for free programming of darts and pleats.

The **programming mode** is activated by pressing the " **P** " key for minimum 3 seconds.

The value shown is changed with the " **+** " and " **-** " keys.
The value is immediately saved in nonvolatile memory.

The next program step is called up with the " Σ " key.
At the last program step the return to the 1st program step occurs by pressing the " Σ " key.

The programming mode is exited by pressing the " **P** " key.

Example:

Program position 10 is programmed.

– Set the " **Program** " switch to **10**.

– " Turn the main switch on " or press the " **STOP** " key.
Program **10** is activated.
The sewing unit requests a reference run.

– Press the " Σ " key.
The reference run is conducted.

– Press the " **+** " and " **-** " keys at the same time.
The piece counter is reset to **0000**.

– Press the " **P** " key for 3 seconds.
The programming mode is activated.
Set the rpm for sewing.
Setting range: 3800 - 4800 min^{-1} **Resolution:** 100 min^{-1}

– Press the " Σ " key.
Set the rpm for bar tacking at the seam beginning.
Setting range: 1000 - 3000 min^{-1} **Resolution:** 100 min^{-1}

– Press the " Σ " key.
Set the rpm for bar tacking at the seam end.
Setting range: 1000 - 3000 min^{-1} **Resolution:** 100 min^{-1}

– Press the " Σ " key.
Set the rpm for the advance.
Setting range: 3000 - 4000 min^{-1} **Resolution:** 100 min^{-1}

– Press the " Σ " key.
Rpm for thread chain.
This value can not be changed !
Setting range: 1000 min^{-1}

– Press the " Σ " key.
Set the rpm for Softstart.
Setting range: 200 - 1000 min^{-1} **Resolution:** 100 min^{-1}

– Press the " Σ " key.
Set the number of stitches for the advance.
Setting range: 0 - 20 stitches **Resolution:** 1 stitch

– Press the " Σ " key.
Set the number of stitches for stitch condensation at the seam beginning.
Setting range: 3 - 8 stitches **Resolution:** 1 stitch

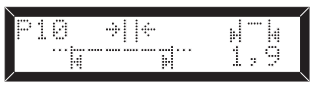
– Press the " Σ " key.
Set the number of stitches for stitch condensation at the seam end.
Setting range: 3 - 8 stitches **Resolution:** 1 stitch

– Press the " Σ " key.
Set the number of stitches for bar tacking at the seam beginning.
Setting range: 3 - 5 stitches **Resolution:** 1 stitch

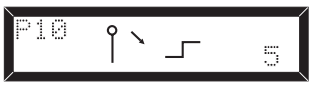
– Press the " Σ " key.
Set the number of stitches for bar tacking at the seam end.
Setting range: 3 - 5 stitches **Resolution:** 1 stitch

– Press the " Σ " key.
Set the number of stitches for the thread chain.
Setting range: 1 - 6 stitches **Resolution:** 1 stitch

– Press the " Σ " key.
Set the stitch length for stitch condensation.
Setting range: 0.5 - 1.4 mm **Resolution:** 0.3 mm



– Press the " Σ " key.
Set the stitch length for sewing.
Setting range: 1.9 - 2.8 mm **Resolution:** 0.3 mm

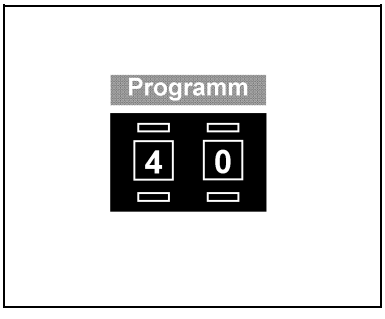


– Press the " Σ " key.
Set the time left anti-remover
Setting range: 1 (100 ms) - 9 (900 ms)

– Press the " Σ " key.
Set the pulse length anti-remover
Setting range: 1 (100 ms) - 9 (900 ms)

– Press the " **P** " key.
The programming mode is ended.

4.3 Setting the Blower Activation Period



The blower activation period for the blowing out of the sewing piece is set in program 40.

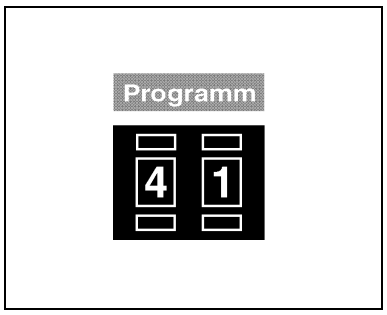
– Set the " **Program** " switch to " **40** ".

– Press the " **STOP** " key.
The program is activated. The blower activation period appears.

– Set the desired value with the " **+** " or " **—** " key.

Setting range: 01...20 = 0.1...2.0 seconds

4.4 Setting the Underthread Counter



The underthread counter is set in program 41.

The presetable decrementer monitors the underthread reserve.

The decrementer works with the factor 10, this means, after every 10th stitch the preset value is decreased by 1. This is shown in the right half of the lower line of the display.

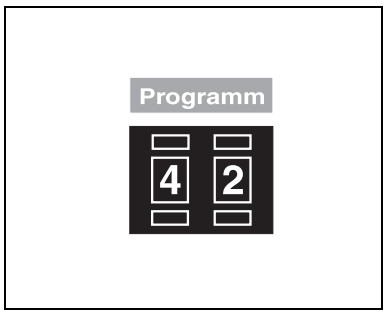
The size of the initial value to be selected depends on the following factors:

- Thickness of the underthread used
- Thread tension during winding
- Material thickness

Setting the initial value

- Set the " **Program** " switch to " **41** ".
- Press the " **STOP** " key.
  The program is activated.
  The preset value appears in the lower line of the display.
  The current position to be changed blinks.
- Set the desired value for each position with the " **+** " or the " **-** " key.
- The next higher position is selected with the " Σ " key.
- By operating the " **+** " and " **-** " keys at the same time the counter is reset to **0000**.
  ATTENTION !
  By setting the value to **0000** the underthread monitoring through the counter is turned off and the automatic remaining thread monitor activated.

4.5 Setting the Remaining Thread Monitor



Program 42 serves for the alignment of the reflected light barrier.

- Set the " **Program** " switch to " **42** ".
- Press the " **STOP** " key.
  The program is activated.

  With correct alignment of the light barrier a reflection occurs with the turning of an empty bobbin.

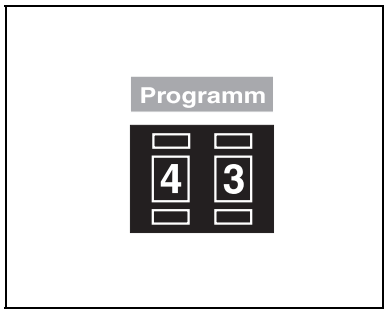
▒▒▒ = + Reflexion

▒▒▒ = ---- No reflexion

ATTENTION !

The remaining thread monitor is only effective when the value for the underthread counter was set to **0000** in program 41.

4.6 Stopping Point for the Function Sequence



A sewing program with stopping points is run through in program 43.

– Set the " **Program** " switch to " **43** ".
– Press the " **STOP** " key.
  The sewing unit requests a reference run.
– Press the " Σ " key.
  The reference run is conducted.

  The display **P?** appears.
– Set the " **Program** " switch to the sewing program to be sewn with this testing program.
– Insert the table manually.
  The form set closes automatically.
– Press the " Σ " key.
  The table runs back into the initial position.

  Check if the material was precisely transfered and is sufficiently clamped.

– Press the " Σ " key.
  The sewing sequence is started and runs to the point where the the thread shears are up.

  Check if the thread lies under the shears.

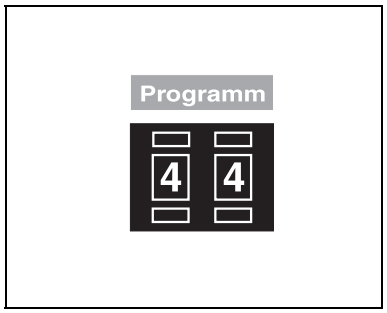
– Press the " Σ " key.
  The needle and the underthreads are trimmed.

  Check if both threads were trimmed cleanly.

– Press the " Σ " key.
  The form set opens and is run into the right end position.

  The program sequence can be started again.

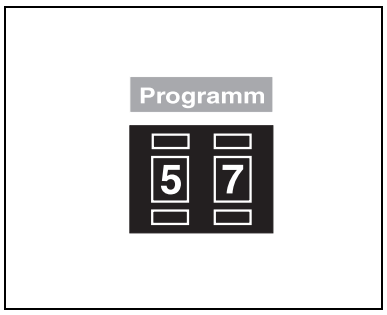
4.7 Monitoring the Underthread counter



The monitoring of the underthread counter is turned on or off by program 44.

– Set the " **Program** " switch to " **44** ".
– Press the " **STOP** " key.
  The program is activated.
– Press the " Σ " key.
  The monitoring of the underthread counter is turned on or off.

4.8 Test of the Step Motor Drive Pulse



Program 57 checks the step motor controller and the outputs of the step motor.

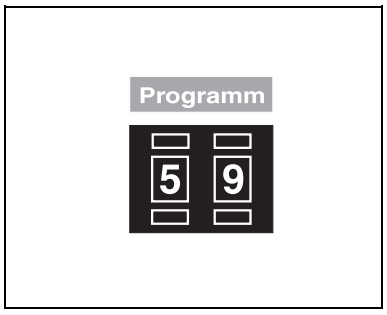
– Set the " **Program** " switch to " **57** ".
– Press the " **STOP** " key.
  The testing program is activated.
  The results appear.

Display	Explanation
AMP ERR	Error in the output or transmission cable not plugged in
LINK OK	Transmission to the controller OK
LINK ERR	Error in the transmission
EPROM OK	EPROM OK
EPRO ERR	EPROM defective
XCOU OK	Counter component for cycle counting OK
XCOU ERR	Counter component for cycle counting defective
SCOU OK	Counter component for cycle generation OK
SCOU ERR	Counter component for cycle generation defective

4.9 Timer Test and Memory Test

ATTENTION !

This program erases all stored values.
Sewing lengths, blower activation period and all other values must be reset.

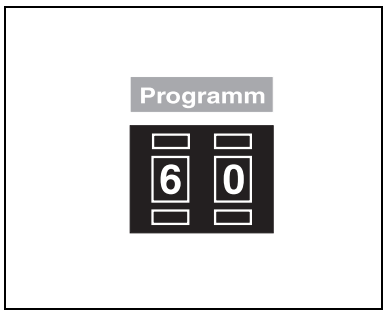


The working memory and the timer switchings are checked by the program independently.

– Set the " **Program** " switch to " **59** ".
– Press the " **STOP** " key.
  The program is activated.

Display	Explanation
OK	Working memory and timer are OK
ERROR 0	RAM error
ERROR 6	Timer 1 defective
ERROR 7	Timer 2 defective

4.10 Continuity Test



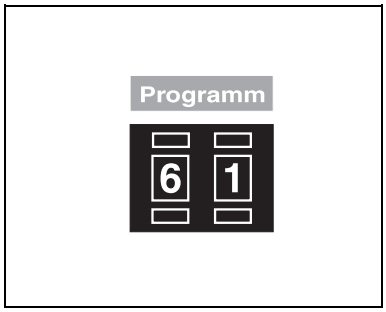
Program 60 checks if the 24 V current supply supplies current with the output drivers turned off.

Then program 60 checks all existing output elements, the output driver and the installation for continuity.

- Set the " **Program** " switch to " **60** ".
- Press the " **STOP** " key.
  The program is activated.

Display	Explanation
V?	Short circuit in the installation or an output driver is defective.
S17	Interruption in the output element S17, in its installation or driver. Continue the check at the next element by pressing the " Σ " key.

4.11 Testing the Front Panel Elements



Program P61 tests the front panel elements.

- Set the "**Program**" switch to "**61**".
- Press the "**STOP**" key.
  The program is activated.
- Operate the selector switch on the front panel.
  The current setting value of the operated selector switch appears in the display.
  Upon operation of a key on the front panel (Exception: STOP key) the numbers associated with this switch (1, 2, 4 or 8) appear.
- The LEDs on the front panel are selected via code numbers. The short designations of the circuit diagram (1 - 8) serve as code numbers.
  The LEDs are switched on with the "Σ" key.

Switch	Function	Designation
b417	Function switch	
b401	- none -	
b402	- none -	
b413/412	Program switch	PROGRAM
b416	Stop (key 13)	STOP

Key	Function	Symbol	Display
b814	Stitch condensation NA		LED
b815	Setting the counter		Display
b816	- Reserve -		
b817	- Reserve -		
b818	Blower from above / blower from the right		LED / LED
b819	Smoother		LED / LED
b820	A		LED
b821	Stitch condensation NE		LED
b822	Softstart		LED
b823	Minus		Display
b824	Plus		Display
b825	P		display
b826	Seam length through light barrier		Display
b827	L3		Display
b828	L2		Display
b829	L1		Display

LED	Function display
H1b	Stitch condensation NA
H2	Securing NA
H3c	Softstart
H4c	Blower from the right
H5b	Blower from above
H6b	Smoother
H7a	Securing NE
H8a	Stitch condensation NE

4.12 Checking the Input Elements

Program 62 checks the input elements.

- Set the "**Program**" switch to "**62**".
- Press the "**STOP**" key. The program is activated.
- Press the input element.
  The wiring diagram designation and the switching status of the input element appear in the display (e.g. "+B25").
  The display changes when the switching status of any other input element is changed.

The switching status "**+**" means:

- By contact switch = Open contact
- By proximity switch = Metal in front of the switch
- By reflecting light barrier = No reflection
- Transmitted light barrier = Light beam not interrupted

4.13 Selecting Input Elements

ATTENTION !

All input elements were carefully set at the factory.
The resetting and correction may only be conducted by trained service personnel.

Program 63 is used for setting the input elements.

- Set the " **Program** " switch to " **63** ".
- Press the " **STOP** " key.
  The program is activated.
- Set the " **Program** " switch to the selected input element (see Table).
- Adjust the input element (switching flag, switching cam, etc.) until the desired switching status appear.

Input Element	Function
b03	Table forward
b04	Sewing enabled
b05	Transport carriage left
b07	Transport carriage right
b12	knee-switch
b14	Needle thread monitor
b15	Form set slewing
b16	Form set control
b45	Light barrier seam end
b46	Remaining thread monitor

4.14 Selecting Output Elements

Caution Risk of Injury !

During the function test do not reach into the running machine. Choose your position so that no injury is possible (e.g. Function test s17: Table back).

The program checks the functioning of an output element.

- Set the " **Program** " switch to " **64** ".
- Press the " **STOP** " key.
  The program is activated.
- Set the " **Program** " switch to the output element.
- Press the " Σ " key.
  The selected output element is turned on.
- Press the " Σ " key.
  The selected output element is turned off.

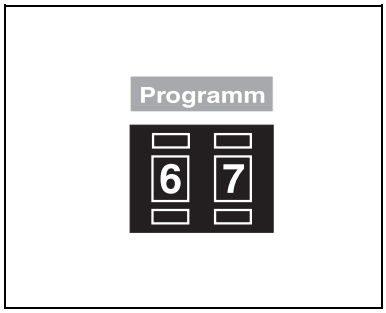
Output Element	Designation
s17	Table back
s18	Table free
s19	Thread tension release
s9	Blower from the right
s10	Blower from above
s20 / **s20A**	Vacuum
s25	Smoother
s28	Shears
s29	Form set slewing
s30	Pressure increase for the thread clamp
s31	Thread chain release
s32	Form set closing

4.15 Positioning the Machine Head in the 2nd Needle Position

This program positions the machine head in the 2nd position (needle up).

- Set the " **Program** " switch to " **66** ".
- Press the " **STOP** " key.
  The program is activated. Display " **SW?** "
- Set the drive rpm with the " **Program** " switch to " **01** "... " **13** ".
  01 = Minimum rpm
  13 = Maximum rpm
- Press the " Σ " key and hold down.
  The drive runs at the selected rpm. The current rpm appears after a few seconds.
  After release of the " Σ " key, the needle positions in the 2nd position (needle up).

4.16 Positioning the Machine Head in the 1st Needle Position



Program 67 positions the machine head in the 1st position (needle down).

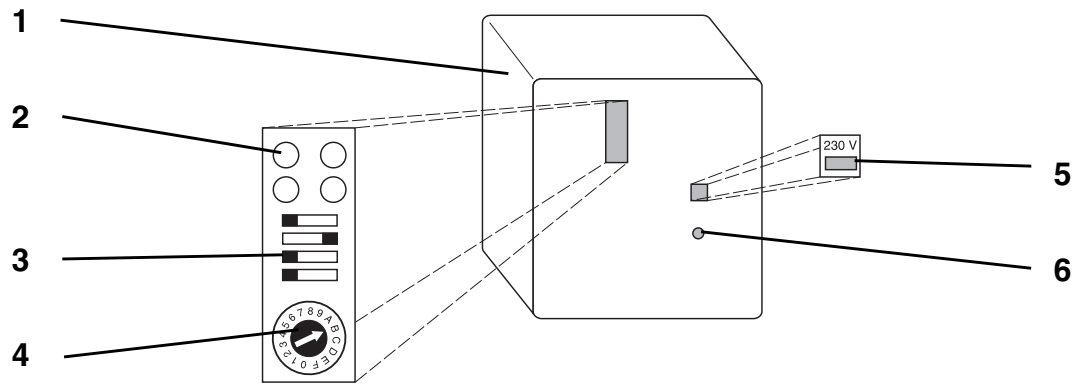
– Set the " **Program** " switch to " **67** ".
– Press the " **STOP** " key.
  The program is activated. Display " **SW?** "

  Program sequence and description as in 4.15.
  Positioned is in the 1st position.

5. Function Displays and Error Messages

Display	Explanation	Remarks
P?	Invalid program (Exception in program 43)	Reset the " **Program** " switch (See program 43)
743221A1	Display of the program version	---
---REF--->	Run to the reference point	---
REF--->	Run to the reference point	---
---x---	Thread breakage	Reinsert thread
POS-ERR	Motor doesn't turn	Check the motor protection switch
--( )--	No signal from the synchronizer	Check the synchronizer
SW?	Invalid rpm level set	Reset the " **Program** " switch
E2	Fuse E2 on the control transformer defective	Replace the fuse
STOP	Stop key defective	Replace the Stop key
b417	Invalid switch setting at b417	Reset switch b417
b16	Form set not present	Insert the form set
b4	Sewing enabled	---
SMC TEST	Step motor controller being tested	---
AMP ERR	Error in the output Transmission cable not plugged in	See notes to step motor output Plug in transmission cable
LINK OK	Transmission to the controller OK	---
LINK ERR	Error in the transmission	Replace the controls
EPROM OK	EPROM OK	---
EPRO ERR	EPROM defective	Install a new EPROM
XCOU OK	Counter component for cycle counting OK	---
XCOU ERR	Counter component for cycle counting defective	Replace step motor modul 9850 745007
SCOU OK	Counter component for cycle generation OK	---
SCOU ERR	Counter component for cycle generation defective	Replace step motor modul 9850 745007
ERROR 0	RAM error	Replace the controls
ERROR 1	Error in the input elements	Check the input elements
ERROR 2	Error in the front panel elements	Check the front panel elements
ERROR 3	Program switch defective	Replace the program switch
ERROR 4	Error in the transmission to the sewing drive regulator	Replace the controls
ERROR 5	Short voltage drops in the mains	Stabilize the current supply
ERROR 6	Timer 1 defective	Replace the controls
ERROR 7	Timer 2 defective	Replace the controls
ERROR B5	Transport carriage left (end position)	Push into the base position manually
ERROR B45	Light barrier (no material present)	Insert material
Error Bxx	Error in input element Bxx	Bxx defective or incorrectly set
PROG ERROR 1	Error in the saved values	Reset the seam lengths, blower activation period, etc.
PROG ERROR 2	Error in saving the checksum	Program incorrectly stored in memory

6. Step Motor Output



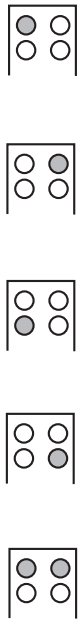
Caution Electric Current !

Turn the main switch off !
The switches may not be adjusted while under current.

The switches must be in the position shown !

1 = Step motor output
2 = Status displays **see Chapter 6.2**
3 = Parameter switch **see drawing**
4 = Current selector switch **F**
5 = Voltage selector **230 V**
6 = Operation lamp **ON / OFF**

6.1 Status Displays



LED 1 **Undervoltage**
Shortfall in the supply voltage of more than 30 %.

LED 2 **Phase monitoring**
Interruption in one or more motor leads.

LED 3 **Short circuit**
Short circuit between one or more motor phases or motor phase and ground.

LED 4 **Overheating**
Exceding the allowable temperature of the unit.

LED 1 and 2 **Reset**
The ENABLE input is not activated by the controls.